Nova Scotia

ANNUAL REPORT

for the fiscal year
ending March 31, 1984

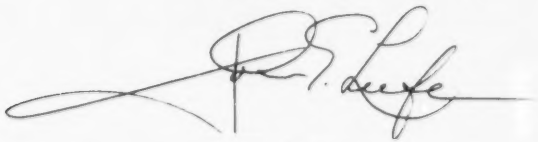
Department of Fisheries

To His Honour
The Honourable Alan R. Abraham, C.D.
Lieutenant-Governor of Nova Scotia

May It Please Your Honour:

I have the honour to submit herewith the Twentieth Annual Report of the Department of Fisheries, for the fiscal year ending March 31, 1984.

Respectfully submitted,



John G. Leefe
Minister of Fisheries

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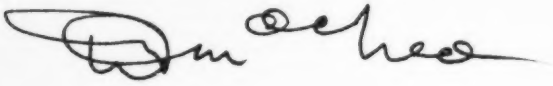

D.A. MacLean
Deputy Minister

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THE FISHING INDUSTRY

Total landings of commercial marine species in Nova Scotia declined in 1983.

Fishermen in the province landed 437,193 metric tons of fish, shellfish and marine plants in 1983, representing a 6.9 per cent decrease over the 1982 catch of 469,475 metric tons. However, the landed value of all species increased 6.6 per cent to $276.5 million from $259.4 million.

Lobster replaced cod in terms of being the most valuable species in 1983, returning $68.2 million to fishermen. Cod was second with a landed value of $63.2 million, while scallops provided $60.3 million to fishermen in that sector of the industry.

All sectors of the fishery posted declines in landings with groundfish down 3.9 per cent; pelagic and estuarial down 10.3 per cent; and molluscs and crustaceans down 18.6 per cent. Landed values for groundfish dropped 3.8 per cent; for pelagic and estuarial down 18.6 per cent; and for molluscs and crustaceans up 22.7 per cent. The significant increase in the value of shellfish was primarily due to stable scallop prices and large landings of lobsters.

During the year the industry continued to be buffetted by economic conditions that proved difficult to overcome. Towards year-end, a major restructuring of two large offshore fishing companies was underway which, it is hoped, will provide long-term stability to this sector of the industry.

INDUSTRIAL DEVELOPMENT

The objectives of the Industrial Development Division are to assist in further enhancement of the fishing industry in areas such as fish quality, operational efficiency, infrastructure and safety. These goals were achieved by providing technical and financial assistance through the various programs of the division.

Financial assistance provided by the division was generally based on a 50 per cent cost-sharing arrangement with the applicant, up to a maximum departmental contribution of $15,000. Technical assistance was also available upon request for projects undertaken by industry, with emphasis on innovative projects and new technological developments.

Technology Development — Fishing Vessels

Technical assistance was provided to vessel owners who previously had their fish holds fitted with insulation. The results so far are encouraging, but all of these vessels will continue to be monitored. Details of these inspections are the subject of separate survey reports which are currently on file at the department. Certain vessels in the herring seine fleet will be inspected early next year and will also be the subject of separate reports.

A device for pre-heating diesel fuel was tried on one vessel, but results proved unsatisfactory and the equipment has been removed.

Two vessels were fitted with Halon Fire Extinguishing systems under the division's assistance programs and other enquiries for this program are being investigated.

Technology Development — Fishing Gear

Much effort was expended on further development of longline fishing, using monofilament gangions affixed with swivels to the groundline. Results have been very encouraging and one project is ongoing at Cape Sable Island.

A groundfish wash box was developed for the inshore sector of the fishery and a prototype is under construction. Trials will be

conducted through the summer months to determine the effect on fish quality.

One vessel in the province was rigged in a fashion similar to a West Coast salmon troller to assess the viability of trolling for cod in eastern Nova Scotia. Although this project is still ongoing, early results were not productive.

Technology Development — Shore-Based Facilities

The technical staff continued to provide comprehensive guidelines and consultation services on construction practices for many of the shore-based incentive programs. On-site supervision by the division's engineers is often necessary and they are assisted in the summer months by engineering students.

Further evaluation of carbon dioxide as a fish-chilling agent was carried out in Eastern Passage. A vessel was equipped with carbon dioxide cylinders, boxes and related equipment. Results were encouraging and a report is available from the department.

A freezer using carbon dioxide as the refrigerant was constructed in Cape Breton. Results have been very encouraging and further work may be conducted in 1984.

A mussel-grading machine was cost-shared and placed in operation at a plant in Nova Scotia. Increased efficiency in the grading process has led to considerable interest from others in the aquaculture industry.

Various processors were assisted with the installation of heat pump fish-drying systems. These units provide not only a saving in terms of fuel usage but enable a plant's production cycle to be more flexible.

Product Technology and Process Development

Bait-bag evaluations are being continued in areas of design, size, construction type and adaptability to both the lobster and crab fisheries.

Work is continuing to develop an economical, artificial longline bait using natural substances. Various formulae are

being tested, information is available from the department. Initial results have been promising.

First-year tests, using Nova Scotia dried fish silage as agricultural fertilizer, have produced very encouraging results with the cabbage family field crop. A summarized paper on the work done is included in the 1983 Annual Report of Agriculture Canada.

Design development projects are ongoing with the Technical University of Nova Scotia in the areas of mussel declustering; fish splitting; specialized gutting wheels and stability tests on fish waste byproducts using antitoxidants.

With the acquisition of a vacuum pack unit, on-site demonstrations are initially being carried out with processors who are concerned with maintaining the quality of smoked products during distribution, as well as in enhancing packaging.

Development of heavy-salted round herring having fat content over 15 per cent has been successful. This unrefrigerated product is being promoted for Far East markets.

New product development and new added value concepts are now under evaluation in areas that include kitchen-ready and heat and serve items.

Financial Incentives — Fishing Vessels

Emphasis was placed on upgrading the existing fleet in the areas of quality and safety-related projects. In excess of 200 individual applications were processed in the following areas:

Safety is of utmost importance to the division. This was evident by the continuation of cost-sharing for the purchase of approved liferafts. In total, 88 applications were approved.

Over 20 fish-hold refrigeration and insulation projects were completed under a cost-sharing arrangement. Eligible applicants had to comply with construction guidelines developed for this type of vessel upgrading. Due to a decline in the shipbuilding sector, fewer installations were completed during the year compared to previous years.

Cost-sharing, on the basis of 50 per cent, was also provided to inshore fishermen wishing to equip their vessels with insulated fish-storage containers.

Assistance was provided to 90 applicants to equip their vessels with automatic jigging machines and handline haulers. This program provides a special benefit to the smaller boat fishery which is often overlooked in the total context of the industry.

Financial Incentives — Harbour Facilities

The program for improving available facilities in harbours around the coast consisted of two major areas: private wharves and fishermen's service sheds.

The fishermen's service shed program assisted in the construction of 16 facilities in the province. Each shed was built to departmental construction standards.

Private wharf repair and new construction was carried out by fishermen's groups and local processors. Funding was available for approved material, up to a maximum of $15,000, to groups of four or more fishermen, or to registered fish plants. Other eligible applicants received a maximum of $10,000. During the year, 25 projects in this area were approved.

One marine railway to serve the inshore fishing fleet on the Eastern Shore was completed with the assistance of the division's program. In addition, a gasoline-driven, haul-out winch was constructed and installed at Westport. This prototype will be evaluated during the coming year.

Financial Incentives — Infrastructure

A number of projects were undertaken to improve existing electrical facilities in and around fish processing plants. Of primary importance was the effect which such improvements would have on energy consumption.

Given the lack of adequate fresh water in many areas of the province, the division provided financial assistance to many plants in Nova Scotia which were developing or upgrading their

own water supply systems. The program provided 50 per cent cost-sharing to a maximum of $5,000.

Financial Incentives — Quality

The division provided cost-sharing to a maximum of $30,000 for six applicants who wanted to construct approved ice-making and storage facilities. In August of 1983 the federal Department of Fisheries and Oceans announced a similar program. To avoid duplication, the Nova Scotia Department of Fisheries decided to stop funding such facilities, diverting funding to other projects.

The cool and cold storage program provided much-needed assistance to processors wanting to construct such facilities to hold raw material and/or finished products. The 50 per cent cost-sharing to a maximum of $15,000 aided in the completion of seven projects throughout the province.

The division provided 50 per cent cost-sharing on the purchase of insulated fish-handling containers and salt fish tanks by processors and fishermen. These containers were constructed of approved materials, usually plastic or fibreglass. The primary objective was to improve the quality of the landed catch. Processors were eligible for containers used in conjunction with a forklift truck, while fishermen could purchase containers constructed of any approved material. In total, the division processed 159 applications for this program.

Financial Incentives — Productivity

Two major areas of activity in this particular program were the construction of bait-freezing and storage facilities and trawl tub storage facilities. All 14 projects approved were constructed according to departmental guidelines.

Because of sufficient processing capacity in the province, funding was not availble to any new plant in its initial stages of operation. Processors wishing to become eligible under any program had to provide proof of at least one year of successful operation.

FISHERIES LOAN BOARD

During the 1983-84 fiscal year the activities of the Fisheries Loan Board followed a similar pattern to the previous year.

Ten Board meetings were held and of the 307 applications considered, 175 were approved, 68 were rejected or withdrawn, and four were deferred. The balance were returned to the applicants because they did not qualify under the Board's regulations; 42 of the approved loan applications were for the assumption of loans already on the books of the Board. Gross value of approved loans totalled $7,348,050 with the net value, after down payments and subsidies, being $5,268,848. Federal vessel subsidies and grants amounted to $500,618 on 27 applications; 249 loans were paid off during the year.

The following table compares loan activity over the past seven years:

Year Ending Mar. 31	Loans Considered	Loans Approved	Net Amount Approved	No. of Outstanding Loans	Amount Outstanding
1978	179	169	$ 3,190,554	602	$ 11,406,098
1979	641	607	30,400,000	1,081	21,400,000
1980	929	852	52,550,000	1,765	59,082,800
1981	914	738	39,438,410	2,108	92,434,367
1982	621	382	17,481,477	2,261	107,616,697
1983	435	225	5,475,263	2,234	108,460,960
1984	307	175	5,268,848	2,100	96,065,525

In addition to the outstanding loans of $96,065,525, during the year there were commitments of $2,222,084. Advances during the year amounted to $6,806,724; and repayments on loans amounted to $13,226,535. A further $7,229,750 was received in interest. Write-offs during the year amounted to $1,303,764.

A breakdown of the type of loans approved is as follows:

	No.	Amount
New boats to 44'	59	$1,499,092.96
New boats 44' to 44'11"	4	415,200.23
Draggers & seiners 45' to 100'	4	951,006.70
Used boats to 45'	31	906,347.66
Used boats 45' to 100'	5	980,000.00
Diesel engines	24	282,110.39
Gas engines	7	23,762.40
Deck equipment	4	11,611.60
Electronics	31	101,516.90
Conversions	2	15,950.00
Aquaculture	4	82,248.91
	175	$5,268,847.75

Loans approved, by counties, were as follows:

	No.	Amount
Annapolis	3	$ 614,400.00
Antigonish	10	69,164.15
Cape Breton	10	253,571.63
Colchester	2	19,463.65
Cumberland	2	21,702.65
Digby	14	941,688.80
Guysborough	6	80,318.25
Halifax	19	299,488.26
Hants	—	—
Inverness	11	745,871.10
Kings	—	—
Lunenburg	5	224,711.39
Pictou	16	132,571.30
Queens	1	5,600.00
Richmond	2	30,492.00
Shelburne	28	783,077.48
Victoria	16	244,693.42
Yarmouth	30	802,033.67
	175	$5,268,847.75

Technical and Inspection Services

During the fiscal year under review, 63 boats of all sizes were completed with Loan Board financing. Technical services were provided during the preliminary planning and during the construction stages of these boats. Progress inspections were made by the inspection staff on 73 boats and at the end of the fiscal year 10 of these boats were at various stages of construction and subject to further inspection. In addition, 81 used boats were inspected and appraised; 65 boats were inspected for engines, equipment and upgrading and four boat shops were inspected. There were 394 boats inspected for maintenance and housekeeping.

TRAINING AND FIELD SERVICE

TRAINING

The department's training programs operated on a wide basis serving the needs of the fishing industry, other government agencies and fishermen from overseas.

The services offered by the division are as follows:

	Inshore	Offshore	Processing
Navigation	Small Craft Master Fishing Master Class IV	Fishing Master I Fishing Master II Fishing Master III	
Engineering	Small Gas and Diesel Diesel Engines Hydraulics	Watchkeeping Engineer Fishing Vessel Chief Engineer 4th Class Engineer	Refrigeration for: Small Plant Operator Assistant to Plant Engineer
Fishing Gear Technology	Basic Skills in Repair and Construction	Deckhand Trawlerman	
Safety	Marine Emergency Duties I Fire Fighting Life Saving, Survival First Aid	Marine Emergency Duties II Life Saving, Survival First Aid	
Business Practices	Family Business Record keeping Taxation Financial Decision-making		Small Plant Operator Record keeping Finance Management
Quality Control	Included in Fishing Gear Program	Included in Trawlerman Course	Production Staff Fish Buyers
Advisory Services	Fishing Gear and Engineering	Design of Special Programs	Design of Special Programs

Transport Canada Certificate Examinations

There continues to be a strong demand for courses in navigation and safety. The main thrust of this demand came from the inshore fleet. While there is no current regulation for Transport Canada certification of the inshore fleet, there is considerable interest in safety and navigation training leading to certification as Fishing Master Class IV.

The safety and navigation certification programs were conducted at the School of Fisheries, Pictou, and in 36 locations throughout the province.

For 1983-84 the Training and Field Service Division achieved a high success rate in Transport Canada Navigation Certificate examinations, results of which are as follows:

Transport Canada Certificate	Number of Courses	Number of Fisherman Passed
Fishing Master Class IV	13	160
Fishing Master Class III	5	60
Fishing Master Class II	4	44
Marine Emergency Duties	8	99

Extension Programs in Fishing Communities

A breakdown of the training programs conducted in the fishing communities is as follows:

	No. of Courses	Students Completed
Navigation	12	148
Inshore Fishing Operations	13	196
Business Practices	4	56
M.E.D.	3	36
Small Gas Engines	4	40

The planning and co-ordination of the programs in the fishing communities is facilitated through the work of the department's fisheries representatives and the cooperation of Canada Manpower officials. Funding, for the courses at Pictou and the extension programs, is provided through Canada Employment and Immigration. It is administered by arrangement with the joint Federal/Provincial Institution Training Committee.

Nova Scotia School of Fisheries, Pictou

A breakdown of the courses conducted at Pictou is as follows:

(a) Programs under Canada Manpower Institutional Training Program:

	No. of Courses	Students Completed
Navigation	10	116
M.E.D.	8	99
Deckhand	3	39
Chief Engineer	2	12
Business Practices	1	14
Trawlerman	1	14
Inshore Fishing	2	30
Small Gas and Diesel	2	23

(b) Overseas Fishery Training

This is a joint venture between the department and Canadian Industrial Development Agency (CIDA/VADA).

	No. of Courses	Students Completed
Diesel Engines	1	3
Outboard Engines/Net and Gear Technology	1	10

(c) Other Government Agencies

	No. of Courses	Students Completed
International Ocean Institute	1	13

Training Summary

The following table indicates the extent of fisheries training conducted over the past five years:

	1979/80	1980/81	1981/82	1982/83	1983/84
Number of Courses	67	96	112	77	65
Number of Trainees	697	1,100	1,141	779	824
Number Completed	639	1,008	1,107	763	824

New Programs — Quality Control

With the proposed implementation of new regulations on grading of fish at the dockside and revised standards for end-of-line grading in the processing plants, the division will be offering training programs to meet these changes. The courses will be available in December of 1984.

FIELD SERVICE

The Field Service experienced another active year as it dealt with many problems in the nine geographical regions of the province. It continued to assist the department in the provision of programs to the industry.

Low fish prices and higher costs in some sectors of the fishery resulted in a third consecutive year of reduced loan applications and consequently a slight decline in some of the extension functions associated with the Loan Board. More emphasis was placed on assisting those in arrears.

In 1983-84 several hundred confidential reports on loan applicants were completed by the Field Service. In a number of instances, through counselling by Fisheries Representatives, fishermen in difficulty were able to overcome problems or, in a few cases, were able to have other fishermen take over remaining debt loads on boats, thus avoiding repossession and the possible impairment to future credit.

The constant supplying of financial advice, forms and additional loan information to fishermen remained an important function of this section.

Approximately 600 Industrial Development Division applications for assistance, described elsewhere in this report, were taken and rated according to impact and priority. Progress on approved projects was monitored by the representatives, and technical information was often supplied through them as well.

Training activities continued at a significant level with all programs promoted and, to a large extent, co-ordinated by the field service staff. As a result, about 32 extension courses were offered in fishing communities throughout the province while other fishermen were encouraged to attend courses offered at the School of Fisheries in Pictou.

The solving of local problems and the liaison aspects continued to be a significant component of the Field Service. Beside handling many individual and collective problems of fishermen, the fisheries representatives relayed requests for improved harbour facilities, better navigational aids, subsidies, licensing mat-

ters, etcetera, to federal departments for action.

Dispensing information on government programs and policies continued to be an important role of the section. In addition, there was participation in industry meetings, exhibitions and career days. Some fisheries representatives served on a number of official committees, including the Marine Safety Advisory Committee, Scallop Advisory Committee and the Annapolis Valley Affiliated Boards of Trade (Fisheries Sector).

Proposed dumpsites for dredging spoils were checked with local fishermen and the findings transmitted to the Department of Environment. Where good fish bottom could be destroyed or impaired, alternate dump sites with accurate co-ordinates were supplied.

Numerous federal and provincial employment projects were sponsored by the fisheries representatives during the year. The exact number of jobs created is difficult to ascertain because in some instances they acted as the catalysts and had fishermen and plant owners act as the official sponsors.

In addition, the Field Service was involved with the Department of Lands and Forests in the administration of fishermen's reserves, land acquisition and disposal.

MARINE RESOURCES DIVISION

The Marine Resources Division represents the department, and the fishing industry of the province as a whole, on numerous government-industry advisory committees. Its function is to ensure that the needs of the industry are adequately considered in the development and implementation of management plans for the various fisheries in which the provincial fishermen participate. This year the division was represented on 34 official advisory committees dealing with groundfish, pelagics, scallops, marine plants and crustaceans as well as advising on bilateral agreement discussions with foreign nations. The division also represented the department on five offshore oil and gas committees and the Division Director is co-chairman of the joint Nova Scotia-Canada Fisheries Advisory Committee as provided for in the Canada-Nova Scotia Agreement on Offshore Oil and Gas Resource Management and Sharing. Through the oil and gas committees, the department ensures minimal interference with the fishing industry as a result of offshore exploration and development, and interacts directly with the Canadian Oil and Gas Lands Administration and with other federal and provincial departments involved in authorizing offshore activity.

The Resource Management and Research section of the division is divided into three units, each dealing with a particular species group: marine plants, invertebrates and pelagic fish. As well as providing expertise in their specific fields for management of the resource, each unit is involved in research programs investigating species and stocks of specific interest to Nova Scotia. These studies are important to the development of new fisheries for the future and to improved management for the present. These programs involve considerable field work for which students are employed. Details of these studies are as follows:

Marine Plants

Research necessary for the development of an optimal harvest strategy for kelp *(Laminaria)* in southwest Nova Scotia was completed in 1983. The final report became available in the fall. Results indicate that the most abundant kelp, *Laminaria longicruris* recovers rapidly from harvesting. *Laminaria digitata*, which is less abundant, regrows more slowly. The regrowth rate of *Laminaria longicruris* appears to permit a yearly harvest for

maximum yield. At present, only small amounts of *Laminaria* are harvested in Nova Scotia. However, the marine plants industry continues to show an interest in harvesting Nova Scotia kelp, both for extraction of alginates (used in many industrial and food processes) and for consumption as a vegetable.

Invertebrates

In 1983 the division continued its research program investigating various aspects of the growth and survival of stage four juvenile lobsters. Hatchery-reared animals were placed on the ocean bottom at selected sites in Guysborough County. Their response to various conditions was observed and the impact of their addition to the benthic community was assessed. Work is continuing to determine the effect of planting juvenile lobsters, and the potential of artificial stock enhancement.

A lobster hatchery located at Dalhousie University provided about 25,000 stage four juveniles for field study last year. These lobsters were used for field research programs.

An underwater research team stationed in Port Bickerton, Guysborough County, conducted field work on juvenile lobsters. In addition, this group was available to carry out other fisheries-related underwater work in eastern Nova Scotia.

In 1983 the division participated in port sampling programs collecting information on lobsters, crabs and scallops at fishing ports around the province. Biological data including size frequencies, catch effort and reproductive potentials were gathered and will be used to assess the fisheries as they exist and to project how they may respond in the future.

Pelagic Fish

Ongoing studies of the Bras d'Or Lake and Pictou Island herring fisheries have examined some of the adult population characteristics of size and age composition, growth and reproductive maturity. A technical report was prepared on the early life history of herring in the Bras d'Or Lake, which provided information on: (1) spawning substrate, environmental conditions, egg density and mortality; and (2) larval production, dispersal and mortality.

Little information exists on the biology of gaspereau stocks which spawn in Nova Scotia rivers and lakes. In 1983 gaspereau stocks from the South West Margaree River and Pictou Harbour were studied, since both river systems support commercial fisheries. A tagging study was conducted on the Margaree stock and based on tag returns from the Margaree fishery there appears to be a high degree of homing back to the natal river system. The population dynamics of the Margaree stock have been examined utilizing data from tag returns, age composition, catch and effort, and environmental influences. Studies of fat content in gaspereau stocks from the LaHave River, Pictou Harbour and Margaree River were implemented to assess species differences, fat depletion during migration, and as a factor in fish quality and spoilage. Technical reports are available on these studies.

ESTUARINE AND INLAND FISHERIES

This division is responsible for planning, developing and carrying out departmental policies and programs to conserve and enhance the fisheries resource at the land-water interface. Major responsibilities include:

1) production, distribution and stocking of some 500,000 trout to at least 100 public lakes throughout the province, as well as conducting habitat inventories on potential river-lake feeder systems for trout enhancement measures;

2) conducting pilot-scale studies, applied research and extension work associated with the development of aquaculture opportunities in shellfish (oysters, mussels) and finfish in estuarine and inland waters;

3) providing departmental advice to both provincial and federal agencies and intergovernmental committees concerned with managing the resource base in the coastal zone;

4) carrying out resource inventories of estuarine species for advice concerning resource management decisions, commercial development and land use planning.

The divisional headquarters are maintained at the Nova Scotia Fisheries School in Pictou. Regional operational facilities include: an oyster hatchery at Pleasant Point, Halifax County, and a pilot-scale demonstration site in adjacent waters for off-bottom oyster and blue mussel culture; a major trout hatchery at Fraser's Mills, Antigonish County, providing the majority of trout stocked in public lakes, urban put and take fisheries and private commercial and recreational facilities. Division staff serve on a number of extra-government committees and perform extension services to other government departments and public interest groups, as well as to those involved in the inland and estuarine fisheries area.

Aquaculture Development

(1) Blue Mussels

(a) Seed Production

Collection of wild mussel seed was again an important part of the spring program. During the second week of June, 2, 200 collectors were placed on rafts and longlines in Pleasant Point Pond. Sampling conducted during August showed a density of 21 mussels per square centimeter of collector surface. The seed was of excellent quality; free of fouling and predators, and of uniform size. All collectors were sold to commercial interests during September and October. As in the past, demand exceeded supply.

(b) Grow-out Trials

Monitoring of experiments set up in 1982, designed to compare productivity of Pleasant Point collectors versus sleeving, was continued through the 1983 growing season. Parameters monitored were: shell length, size uniformity, total weight, density (number of animals per area of substrate), migration and reattachment rate. Mussels on a number of experimental units had grown to market size (50 mm) by December. Final destructive sampling of all units will take place in the spring and early summer of 1984.

A presentation of preliminary results of this test series was made at the Annual Fish Health Workshop in January. Major points were:

1) sleeving gave an overall higher yield than collectors

2) growth and meat yields were similar on both substrates

3) improved yield was the result of greater numbers of mussels reaching market size on the sleeves.

(2) Oysters *(Ostrea edulis)*

Production of seed oysters in our Pleasant Point Hatchery concentrated on *Ostrea edulis*, the European oyster. Adult condition-

ing took place from February through June, yielding the following:

Ostrea edulis seed sold to industry	229,000
Ostrea edulis for site evaluations	8,000
Ostrea edulis held for departmental use	
— cultchless	55,000
— on cultch	325,000
TOTAL	617,000

(a) Experimental Work

In the autumn of 1983 a new approach to improving overwinter survivorship of *Ostrea edulis* seed was attempted. It is known that oysters store food reserves in their bodies in the form of glycogen and that winter survivorship might be related to the animals' glycogen level during late autumn prior to winter dormancy. In an attempt to induce elevated glycogen levels, two groups of under-yearling *Ostrea edulis* seed were fed a diet supplement of biolet cornstarch for a 10-day period in October. After a five-day starvation period to remove residual starch, tissue samples were taken and analyzed for total glycogen content. Test results indicated a glycogen increase of 84.7 per cent for the control group and 506.9 per cent for the treated group. Both the treated and control groups of *Ostrea edulis* are being overwintered in Spanish Ship Bay. The effectiveness of this treatment in promoting increased overwinter survivorship will be known by May, 1984. A report providing detailed technical information on the treatment is available from the department.

(b) Hatchery Development

In March a four-meter by six-meter plastic covered lean-to style greenhouse was constructed and attached to the south face of the hatchery building. This permitted a much needed expansion of the algal production unit from four to fourteen 200 litre kalwal tubes. The light banks formerly used have been eliminated and the greenhouse is operated on a natural diurnal cycle.

A second modification of the algal unit involved the use of a bulk sterilization tank for seawater. Whereas in the past harvested cultures were returned to full volume using filtered seawater, the bulk tank now permits rebuilding of cultures with

chemically sterilized seawater, a change which has greatly improved the longevity of the cultures. A detailed analysis comparing productivity of the old and new systems indicated the improved production from the greenhouse was primarily the result of improved culture longevity.

(c) Other Activities

A major study was initiated in the Wallace-Malagash area designed to investigate the feasibility of revitalizing a number of existing privately held shellfish leases. The study included larval sampling and spatfall monitoring, both in the water column and on bottom, stand crop estimates, predator abundance and growth trials utilizing both hatchery seed and wild stock. A number of bottom plots for quahog were constructed and seeded in both areas. These are to be sampled again next spring. A detailed report of preliminary findings has been prepared by the biologist in charge.

(d) Extension Efforts

As in previous years, extension services provided to industry and others were significant. A summary is as follows:

Telephone/written contacts	187
Visits to hatchery	63
Workshops provided	2
Career Orientation presentations	2
Government Committee meetings	5
Industry/Government meetings	5
Conferences	3

Inland Fisheries

1) Production

Fall fingerling production and distribution (wild stock replenishment program) to 130 public lakes in the province was increased from 300,000 in 1982 to 500,000 in 1983. Most of these fish were reared at the department's hatchery at Fraser's Mills, Antigonish County, with the remainder provided under contract from federal hatcheries at Coldbrook, Yarmouth, Cobequid and Margaree.

Spring yearling production and distribution for the urban put and take fishery saw a significant increase from 50,000 fish in 1983 to more than 200,000 fish projected for placement in the spring of 1984.

Using volunteers from local interest groups in Shelburne, Digby, Hants, Kings, Pictou, Antigonish and Halifax counties, approximately 2,000,000 hybrid brook trout eggs were implanted in a variety of streams.

The division sponsored and demonstrated a successful modular trout fry hatching box with the Kings County Chapter of the Nova Scotia Wildlife Federation, releasing 62,000 speckled trout fry to selected streams in the county. A similar project was undertaken with the Port Morien Chapter of the Wildlife Federation utilizing 100,000 hybrid eggs with a planned 1984 spring release in the industrial region of Cape Breton. The release portion of the program will be a cooperative effort with five regional Wildlife Federation chapters in the area.

Technical advice was provided and trout fingerlings were sold to about 230 individual private pond operators in the province.

Research

Physical habitat surveys were conducted on more than 750 kilometers of feeder streams throughout Nova Scotia. Included in the surveys were assessments of trout habitat for hybrid egg and fry implantation, obstruction removal, habitat alteration and general trout enhancement opportunities. The surveys were conducted with staff hired through the Provincial Employment Program.

At the request of specific interest groups, the division undertook biological assessment surveys on 25 lakes in Nova Scotia. Reports were compiled and distributed as requested.

Fish stocks, equipment and assistance were provided to St. Francis Xavier, St. Mary's and Dalhousie universities in addition to the federal Department of Fisheries and Oceans for research projects associated with a variety of aspects of inland fisheries in the province.

The division provided fish habitat information and potential impact advice to the Venture Gas project.

The provincial response to the 1983 federal Fish Habitat Policy Statement was co-ordinated through the division.

Extension

Technical advice and assistance was provided to 230 individual pond operators and four commercial public fish-out pond operators. The department supported the establishment of a commercial trout hatchery in Cumberland County and purchased some of its production for 1983 fingerling stocking.

Approximately 7,000 visitors toured the Fraser's Mills hatchery, learning about the function of the facility and its role in departmental efforts to increase recreational fishing opportunities in Nova Scotia. In addition, recreational fishing interests and the general public were informed about the departmental role in inland fisheries by utilizing the print media, various fisheries exhibitions and mall displays.

Staff of the division attended and made presentations to scheduled meetings of the Nova Scotia Wildlife Federation, including chapters in Yarmouth, Queens, Lunenburg, Kings, Hants, Halifax, Pictou, Bras d'Or and Port Morien. Many of these groups were assisted in several enhancement projects.

PLANNING AND FINANCE

This division provides administrative support to the department as a whole, including financial, personnel and office services. In addition, planning, economics and statistical services are provided to the department.

Market development and promotion activities continue to play an increasing role in the division's activities in an attempt to improve market opportunities for fishery products from Nova Scotia.

Information services are also provided for both those in the fishing industry and the general public.

Some of the major projects undertaken by the division during the year under review include:

Fish Processing Regulations

Regulations under the Nova Scotia Fisheries Act were prepared during the year, allowing for the regulation and licensing of fish-processing plants by the province. It is planned that these regulations will be implemented during the next fiscal year.

At present, only those fish-processing plants involved in exporting fish from Nova Scotia are inspected and registered by the federal Department of Fisheries and Oceans. The purpose of the new provincial regulations will be to control the quality of fish produced and sold within the province, as well as to assist federal authorities in their regulatory activities. The standards required under the proposed provincial licensing system will be similar to federal standards.

Economic Studies and Projects

(a) Fishing Vessel Cost and Earnings Study

The cost and earnings study of fishing vessels in Nova Scotia has continued as a joint project with the federal Department of Fisheries and Oceans. Operating data from a representative sample of various types of fishing vessels was collected and analyzed to produce an annual report summarizing the economic

performance of each vessel class.

The information from this ongoing study is used by government and the industry for a variety of purposes including: financial analysis of investments in fishing craft; comparing the performance of various types of vessels and fishing gear; and assessing the impact of specific cost and earnings factors, such as increasing energy costs, vessel licensing policies and recently declining fish prices on segments of the groundfish fleet.

(b) Investment Requirements and Financial Implications of Replacing Vessels in the Nova Scotia Fishery

A study was prepared on the capital investment requirements of the Nova Scotia fishing fleet. In this study, estimates were made on the level of the investment needed over the next decade to maintain the current average age of vessels in the various fleet sectors. Estimates were also made for strategies to reduce the average age of our fleet, to possibly more efficient levels.

Another study was made to determine the financial feasibility or expected economic returns of replacing various types of fishing vessels within the Nova Scotia fleet. Results indicate that with current costs and under existing economic conditions, the replacement of many types of vessels does not appear attractive. More detailed studies of this matter are continuing.

(c) Nova Scotia Fishing Industry — Facts and Statistics

Work was started on preparing a statistical profile of the Nova Scotia fishing industry to satisfy many requests for such data and information. Topics contained in the information package include: the fishery in relation to Provincial Gross Domestic Product; landings, landed values and market values by species and counties; production and export statistics; data on employment, earnings and processing establishments; and information on various segments of the fishing fleet.

Market Development and Promotion

(a) General

The role of this section is, first, to provide comprehensive and

timely information to the fishing industry on seafood market opportunities world-wide, as well as ensuring that information on Nova Scotia seafood exporters and products is available internationally. Secondly, the section assists in the promotion of Nova Scotia seafood both within and outside the province.

(b) Seafood Publications

The selection and availability of promotional material was improved during the year with one new recipe pamphlet and three point-of-sale seafood posters added to the existing collection of selling aids. In excess of 450,000 recipe pamphlets, seafood posters and other promotional materials were distributed to retailers, food service operators and the general public during the fiscal year under review.

The Directory of Nova Scotia Fish Products and the Retail Outlet Pamphlet are reprinted annually to reflect up-to-date information. The Directory is a buyer's guide for seafood produced in the province and is distributed internationally. The Retail Outlet pamphlet lists the many outlets within the province where fresh and frozen seafood may be purchased by consumers.

Another major project completed during the year was an audio-visual training package for use by seafood retailers. Although the package is designed for self-teaching, several seminars were conducted using the material to assist retailers in improving their seafood merchandizing techniques.

(c) Seafood Advertising

In addition to traditional print and electronic media advertising, the department produced a major advertising supplement for the food service industry during the year. The supplement was distributed in both Canada and the United States through major trade magazines with a total circulation of about 175,000. The supplement featured menu suggestions utilizing Nova Scotia seafood products, merchandizing ideas for the operator and instructions on preferred preparation methods aimed at maximizing the profitability of seafood as menu items. Major food service chains and distributors were very responsive to the supplement and requested additional copies to assist in their sales efforts.

(d) Food Shows and Demonstrations

The department participated at Seafood '84 in Boston, the most important seafood trade show held in the United States. The provincial companies participating were provided with display equipment and home economist services. This event continues to improve each year and is considered to be a highly effective trade show in relation to our significant market in the New England and Northeastern U.S. region.

The department's home economist continued to provide support services, such as seafood sample preparation, for processors and exporters attending national and international food shows.

Within the province, the department provided numerous seafood cooking demonstrations at exhibitions, shopping malls, consumer shows such as Food Fair Atlantic and Food Extravaganza, as well as other public events. Such promotions are aimed at increasing the Nova Scotia consumer's awareness of seafood and how to prepare it. In addition, seafood information is frequently provided on radio shows aimed at the homemaker; and recipes and other helpful hints are carried by newspapers in the province.

(e) November Fish and Seafood Month

During the month of November, a major radio campaign was conducted to focus attention on seafood. The promotion was kicked off with a media reception. Contests for the consumer were run in conjunction with the radio campaign, which urged consumers to make seafood a regular item in their menu planning. In addition to the radio advertising, a new recipe brochure and seafood poster were introduced.

Public Information Services

(a) Administrative Information and Control System

During the year, several attempts were made to alleviate data storage problems that had become evident in the last fiscal period. All proved to be temporary at best and by mid-year it became apparent that only additional storage capacity or new

software approaches would provide long-term solutions. Both alternatives are under active consideration.

(b) Fisherman's Handbook

By year-end, the third edition of the Fisherman's Handbook was compiled and ready to be published. Industry feedback continued strongly to suggest an annual publication of this compendium of provincial government programs affecting the fishing industry.

(c) Nova Scotia Seafood Cookery

Sales of the department's seafood cookbook continued to be brisk, although short of last year's sales figures. By year-end, a total of close to 6,000 copies of the book had been sold throughout Canada.

(d) Weatheradio Canada

Coverage problems in Cape Breton appeared to be solved with no complaints from fishermen in that part of the province. However, attention shifted to the opposite end of Nova Scotia when it became known that a United States-based service covering Georges Bank would be discontinued. As a result, efforts were concentrated on filling this void, due to the large number of Nova Scotia vessels fishing in this area. Near the end of the year, a high-powered repeater station was being tested at Oak Park, Shelburne County, in the hope that a signal will reach Georges Bank. In addition, this new station may correct a poor reception area near Seal Island.

(e) Exhibitions

The department was represented at the Atlantic Fisheries Trade Show, held in Yarmouth early in the year. In addition, exhibits were entered at the Nova Scotia Fisheries Exhibition and Fishermen's Reunion in Lunenburg and the Pictou Lobster Carnival.

STATISTICAL REVIEW

All fisheries production statistics given here for the calendar year 1983 are revised figures supplied through the courtesy of the federal Department of Fisheries and Oceans. They may be subject to minor adjustments as late returns from firms and individuals are received and processed in that department.

Nova Scotia Fisheries Major Species Landings of those Species Yielding Over One Million Dollars Annually

(Listed in Descending Order of Value in 1983)

		Landings (Metric Tons)		Value ($,000)	
		1983	1982	1983	1982
1.	Lobsters	11,066	8,803	$68,189	$49,956
2.	Cod	151,275	154,387	63,164	68,306
3.	Scallops	44,070	59,616	60,336	55,103
4.	Haddock	38,924	44,383	23,972	22,366
5.	Herring	74,042	80,044	11,466	15,253
6.	Pollock	32,143	35,993	8,302	10,622
7.	Flounders	19,048	18,602	7,462	4,587
8.	Halibut	2,132	1,929	6,521	5,355
9.	Redfish	21,890	17,643	5,088	3,759
10.	Crabs	2,537	2,463	4,314	3,190
11.	Shrimp	1,886	1,303	3,805	2,452
12.	Swordfish	1,065	943	3,416	2,633
13.	Hake	7,766	8,928	2,135	2,730
14.	Cusk	4,366	6,287	1,705	2,663
15.	Clams	2,039	2,393	1,636	1,656
16.	Mackerel	5,513	7,752	1,624	1,954

Table I
Nova Scotia Fisheries
Landed and Marketed Value
1950-1983

(Value in $,000)

Year	Landed Value	Marketed Value
1950	$ 21,400	$ 38,819
1955	23,582	47,093
1960	26,094	51,753
1965	49,371	93,443
1970	55,652	105,939
1975	91,010	208,574
1980	230,911	438,799
1981	263,727	484,182
1982	259,411	523,191
1983	276,451	525,257(1)

(1) This is an estimate based upon recent average past relationships between landed and marketed values.

Table II
Nova Scotia Fisheries
Landings and Landed Value by Species Group

	(Landings) (Metric Tons)		Value ($,000)	
	1983	1982	1983	1982
Groundfish	282,053	293,473	$119,533	$124,225
Pelagic and Estuarial	82,117	91,533	17,507	21,514
Molluscs and Crustaceans	61,696	75,793	138,347	112,798
Miscellaneous (1)	11,327	8,670	1,061	861
Viscera, Scales (2)	2	6	3	13
	437,193	469,475	$276,451	$259,411

(1) Seaweeds, worms.

(2) Livers, tongues, scales, roes, liver oil, skins.

Table III
Landed Value of Fisheries by Counties

County (1)	Landed Value (2) ($,000)		Per Cent Change (3)
	1983	1982	1982/83
Shelburne	$ 48,874	$ 45,676	+ 7.0
Lunenburg	48,608	50,302	- 3.4
Digby	37,734	33,941	+ 11.2
Yarmouth	37,350	34,490	+ 8.3
Guysborough	24,152	17,614	+ 37.1
Cape Breton	22,047	23,264	- 5.2
Halifax	12,405	15,878	- 21.9
Inverness	12,179	10,984	+ 10.9
Queens	11,163	9,288	+ 20.2
Victoria	5,743	5,416	+ 6.0
Pictou	5,032	3,213	+ 56.6
Richmond	4,171	3,633	+ 14.8
Antigonish	2,951	2,597	+ 13.6
Cumberland	1,801	1,099	+ 63.9
Colchester	1,045	709	+ 47.4
Annapolis	891	991	- 10.1
Kings	288	293	- 1.7
Hants	17	23	- 26.1
	$276,451	$259,411	+ 6.6

(1) Counties are in order of the 1983 landed value.

(2) Landed value includes groundfish, pelagic and estuarial, molluscs and crustaceans, viscera, seaweed and other.

(3) Increase (+); Decrease (-).

Table IV
Total Landed Weight of Fisheries by Counties

County (1)	Landed Weight (2) (Metric Tons)		Per Cent Change (3)
	1983	1982	1982/83
Lunenburg	76,210	97,576	- 21.9
Shelburne	68,293	63,357	+ 7.8
Yarmouth	59,737	69,741	- 14.3
Guysborough	57,222	46,123	+ 24.1
Digby	53,080	51,879	+ 2.3
Cape Breton	47,185	53,304	- 11.5
Halifax	21,065	31,210	- 32.5
Inverness	16,510	17,330	- 4.7
Queens	12,912	12,773	+ 1.1
Richmond	12,477	11,553	+ 8.0
Victoria	4,998	6,161	- 18.9
Pictou	3,301	3,533	- 6.6
Antigonish	1,650	2,050	- 19.5
Colchester	933	769	+ 21.3
Annapolis	875	1,209	- 27.6
Cumberland	522	540	- 3.3
Kings	214	257	- 16.7
Hants	9	110	- 91.8
	437,193	469,475	- 6.9

(1) Counties are in order of the 1983 landed weight.

(2) Landed weight includes groundfish, pelagic and estuarial, molluscs and crustaceans, viscera, seaweed and other.

(3) Increase (+); Decrease (-).

Table V
Landed Weight and Landed Value of Fisheries
by Species Group by Counties
(1982-83)

County	Species Group (1)	Landed Weight (Metric Tons)		Landed Value ($,000)	
		1983	1982	1983	1982
Annapolis	Groundfish	356	681	$ 238	$ 444
	Pelagic	13	75	3	44
	Shellfish	505	453	649	503
	Other	1	—	1	—
Antigonish	Groundfish	787	1,164	195	271
	Pelagic	250	362	153	254
	Shellfish	613	524	2,603	2,072
	Other	—	—	—	—
Cape Breton	Groundfish	40,944	47,158	14,990	17,955
	Pelagic	4,310	3,052	753	729
	Shellfish	1,931	2,094	6,304	4,580
	Other	—	—	—	—
Colchester	Groundfish	—	21	—	31
	Pelagic	64	13	48	15
	Shellfish	869	735	997	633
	Other	—	—	—	—
Cumberland	Groundfish	12	48	15	25
	Pelagic	53	229	20	98
	Shellfish	457	262	1,766	975
	Other	—	1	—	1
Digby	Groundfish	27,061	25,006	13,542	12,531
	Pelagic	12,685	8,431	1,529	1,001
	Shellfish	13,332	18,442	22,661	20,409
	Other	2	—	2	—
Guysborough	Groundfish	43,190	35,654	15,458	12,513
	Pelagic	10,043	7,221	1,326	876
	Shellfish	3,989	3,248	7,368	4,225
	Other	—	—	—	—
Halifax	Groundfish	18,678	26,691	9,217	12,410
	Pelagic	1,935	4,102	1,080	2,394
	Shellfish	452	413	2,108	1,064
	Other	—	4	—	10

Table V continued

County	Species Group (1)	Landed Weight (Metric Tons)		Landed Value ($,000)	
		1983	1982	1983	1982
Hants	Groundfish	—	—	—	—
	Pelagic	9	110	$ 17	$ 23
	Shellfish	—	—	—	—
	Other	—	—	—	—
Inverness	Groundfish	12,749	12,664	4,530	4,462
	Pelagic	1,094	2,050	370	509
	Shellfish	2,667	2,616	7,279	6,012
	Other	—	—	—	1
Kings	Groundfish	102	71	82	54
	Pelagic	91	161	58	65
	Shellfish	19	24	144	173
	Other	2	1	4	1
Lunenburg	Groundfish	49,882	59,699	15,346	18,470
	Pelagic	2,900	3,943	685	794
	Shellfish	23,428	33,934	32,577	31,073
	Other	—	—	—	1
Pictou	Groundfish	215	449	38	113
	Pelagic	1,362	1,418	277	305
	Shellfish	1,326	791	4,666	2,685
	Other	398	875	53	110
Queens	Groundfish	8,830	8,064	5,162	4,645
	Pelagic	695	580	874	220
	Shellfish	3,387	4,129	5,127	4,424
	Other	—	—	—	—
Richmond	Groundfish	11,844	10,329	3,338	2,902
	Pelagic	493	1,078	125	255
	Shellfish	139	146	706	476
	Other	1	—	2	—
Shelburne	Groundfish	54,003	50,797	30,681	30,041
	Pelagic	4,450	5,449	2,472	1,858
	Shellfish	2,320	2,236	15,225	13,439
	Other	7,520	4,875	496	338

Table V continued

County	Species Group (1)	Landed Weight (Metric Tons)		Landed Value ($,000)	
		1983	1982	1983	1982
Victoria	Groundfish	2,678	3,021	$ 1,106	$ 1,284
	Pelagic	1,241	2,039	687	973
	Shellfish	1,079	1,101	3,950	3,159
	Other	—	—	—	—
Yarmouth	Groundfish	10,717	11,956	5,598	6,070
	Pelagic	40,427	50,215	7,029	11,103
	Shellfish	5,188	4,651	24,217	16,906
	Other	3,405	2,919	506	411

(1) "Pelagic" includes pelagic and estuarial.
"Shellfish" includes molluscs and crustaceans.
"Other" includes livers, tongues, scales, roe and oil, sea plants, mammals, worms.

Table VI
Atlantic Provinces Landings and Landed Value — 1983

	Landed Weight (Metric Tons)	Landed Value ($,000)
Nova Scotia	437,193	$276,451
Newfoundland	451,604	162,916
New Brunswick	109,111	79,682
Prince Edward Island	53,160	42,926

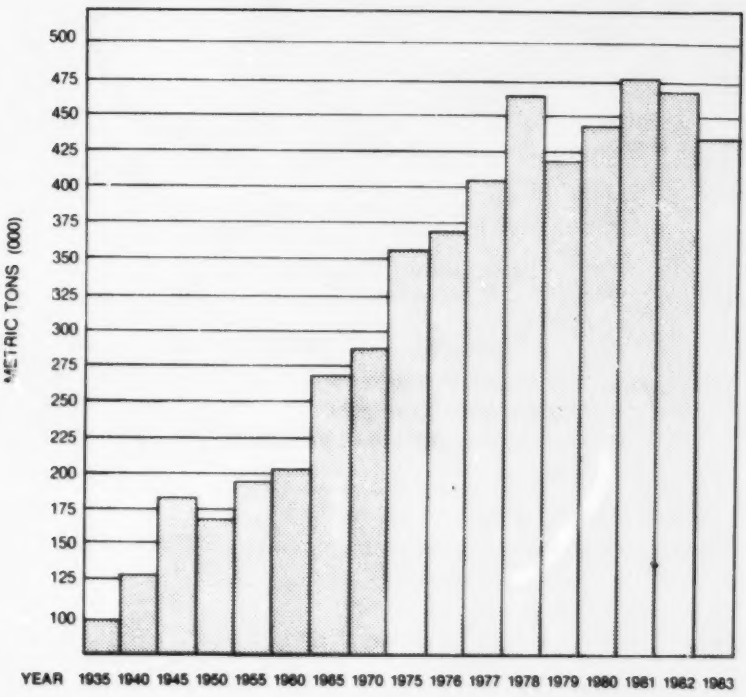
Table VII
Nova Scotia Fishery Profile
Employment

Fishermen — Full-time (10 months or more — 1983)	7,343
Part-time (5-10 months — 1983)	1,500
Occasional (less than 5 months — 1983)	3,700
TOTAL	12,543
Plant Workers — Yearly Average — 1983	7,300
Registered Fish Processing Establishments — 1983	249

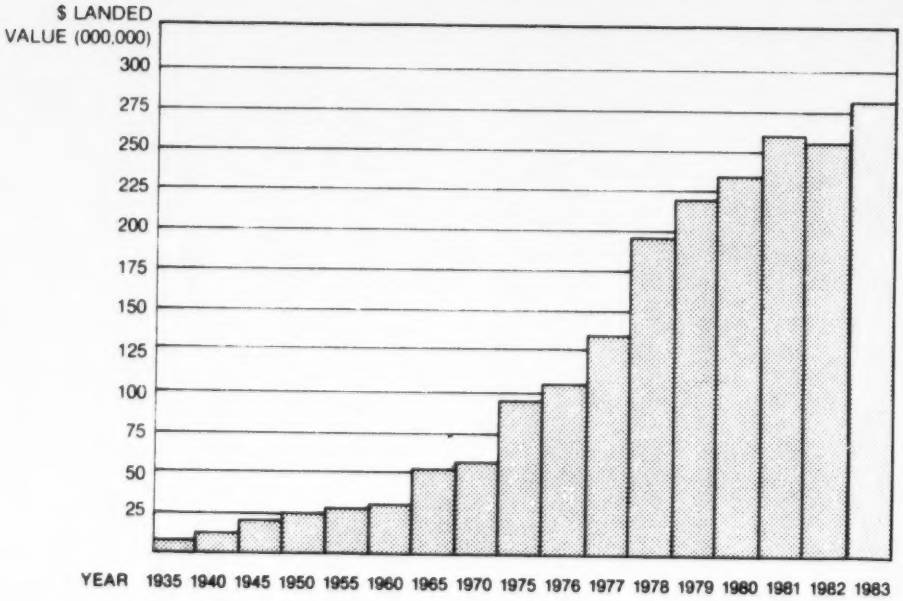
Fishing Craft

Tons	Number of Boats	Value ($,000)
0- 9.9	3,793	$ 21,960
10- 25.9	1,836	56,946
26- 49.9	314	47,620
50- 99.9	142	47,071
100-149.9	28	12,155
150-499.9	117	103,445
500 +	36	137,803
TOTAL	6,266	$427,000

Nova Scotia
Landings Profile



Nova Scotia
Landed Value Profile



Department of Fisheries
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Deputy Minister	**D.A. (Sandy) MacLean**	**Halifax**
Secretary to the Deputy Minister	Miss M.L. Evans	Halifax
Planning and Finance Division		
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Secretary to the Director	Ms. J.L. Ganner	Halifax
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Market Development Officer	Ms. J.L. Raymond	Halifax
Seafood Consultant	Mrs. A.E. Bryant	Halifax
Public Information Officer	K.R. Weston	Halifax
Supervisor, Administrative Services	C.G. Allen	Halifax
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Accounting Clerk	Miss N.A. Smith	Halifax
Clerk Typist	Miss S.J. Kane	Halifax
Clerk Receptionist	VACANT	Halifax
Equipment Officer	F.S. MacKay	Pictou
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Resource Management Officer (Pelagic)	R.H. Crawford	Halifax
Estuarine and Inland Fisheries		
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Secretary to the Director	Mrs. C. Cooper	Pictou
Biologist	B.C. Muise	Ostrea Lake
Maintenance Worker	R.A. Truen	Ostrea Lake

Biologist	G.M. Hill	Fraser's Mills
Biologist	D.A. MacLean	Fraser's Mills
Rearing Pond Attendant	D.J. MacDonald	Fraser's Mills
Rearing Pond Attendant	D.D. Murrant	Fraser's Mills

Industrial Development Division

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Co-ordinator, Development Programs	D.F. Hansen	Halifax
Incentive Programs Assistant	Mrs. M.E. Meagher	Halifax
Development Officer	R.C. MacLean	Halifax
Manager, Marine Technology	A.G. Boyden	Halifax
Fisheries Technician	O.E. Egilsson	Pictou
Supervisor, Plants and Facilities	G.B. Scott	Halifax
Fisheries Technician	W.J. MacDonald	Halifax
Port Facilities Engineer	M.F. Giles	Halifax
Supervisor, Resource Technology	M.A. Drebot	Halifax

Nova Scotia Fisheries Loan Board

Executive-Director	J.A. Marsters	Halifax
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Secretary to the Manager	VACANT	Halifax
Secretary	Miss N.E. Corkum	Halifax
Clerk Typist	Mrs. R.A. Jardine	Halifax
Stenographer	Ms. D.M. Jollimore	Halifax
Chief Accountant	C.E. Decker	Halifax
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Accounting Clerk	Mrs. B.J. Tribble	Halifax
Loan Officer	J.P. Sarty	Halifax
Loan Officer	B.M. Allen	Halifax
Loan Officer	B.E. Cox	Halifax
Assistant Loan Officer	Mrs. L.M. Provender	Halifax
Technical Services Officer	M. Myketyn	Halifax
Fishing Vessel Inspector	B.G. Stockley	Halifax
Fishing Vessel Inspector	VACANT	Pictou
Fishing Vessel Inspector	W.R. Buffett	Halifax
Fishing Vessel Inspector	T. Prewett	Halifax
Loans Administrator	E.J. Pellerin	Halifax

Training and Field Services Division — Training

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Instructor (Nets and Gear)	A.A. Kaiser	Pictou
Instructor (Navigation, Marine Emergency Duty)	D.B. MacCallum	Pictou
Instructor (Engines)	J.W. Grant	Pictou
Instructor (Engines)	Ira Grant	Pictou
Instructor (Engines)	G. Gauthier	Pictou
Instructor (Business)	Miss B.J. Wright	Pictou
Instructor (Navigation)	A.F. Tobey	Pictou
Maintenance Worker	E.G. Dalton	Pictou
Maintenance Worker	C. Steele	Pictou
Housekeeping Aide	Mrs. L. Betts	Pictou

Training and Field Services Division — Field Services

Supervisor, Field Service	C.F. MacKinnon	Halifax
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Fisheries Representative	L.A. Tobey	Port Hood
Fisheries Representative	A.P. Kehoe	Petit de Grat
Fisheries Representative	G.T. Boudreau	Little Dover
Fisheries Representative	G.C. Mossman	Rose Bay
Fisheries Representative	G.A. Nickerson	Clark's Harbour
Fisheries Representative	A.J. Muise	Middle West Pubnico
Fisheries Representative	R.K. McDormand	Granville Ferry

Department of Fisheries
Ordinary Expenditures

Fiscal Year Ending March 31	Total Ordinary Expenditure
1965	$ 230,787
1966	340,653
1967	321,742
1968	530,166
1969	412,577
1970	458,034
1971	1,020,778
1972	1,373,784
1973	908,457
1974	3,138,359 (1)
1975	1,088,534
1976	661,763
1977	2,350,456
1978	3,149,131
1979	5,377,213
1980	5,841,649
1981	11,047,135 (2)
1982	13,758,223
1983	12,642,688
1984	10,891,506

(1) More than $2 million was spent in the form of special assistance to help the industry recover from a storm in June, 1973.

(2) Beginning in 1981, capital advance interest charges for the Fisheries Loan Board are included in the Department of Fisheries estimates. These charges were previously accounted for under Department of Finance estimates.